Stress Unit Converter (MPa, N/mm², psi, ksi, kgf/mm²)

Convert stress or strength between MPa, N/mm², GPa, kgf/mm², kgf/cm², psi and ksi, as material data sheets and design codes quote them.

Method: Unit definitions per NIST SP 811 and the SI Brochure (exact where defined)

Input parameters

Unit system: SI

Parameter	Value	Unit
Stress (choose its unit)	250.00	MPa

Calculated results

Parameter	Value	Unit
Stress in MPa (= N/mm²)	250.00	MPa
Stress in psi	36,259	psi
Stress in ksi	36.259	ksi
Stress in kgf/mm²	25.493	kgf/mm²
Stress in kgf/cm²	2,549.3	kgf/cm²

Notes for this case

• 1 MPa is exactly 1 N/mm². 1 ksi is 6.895 MPa and 1 kgf/mm² is 9.807 MPa, so a 250 MPa yield strength is 36.3 ksi or 25.5 kgf/mm². Older Indian and European drawings give strengths in kgf/mm² and allowable stresses in kgf/cm².

Formula and method

$$1\ \text{MPa} = 1\ \text{N/mm}^2 = 145.038\ \text{psi} = 0.10197\ \text{kgf/mm}^2$$

Variables

σ	Stress (choose its unit)	Pa

Method and standards

Stress units.

Assumptions and limits

- Exact factors where the definition is exact.

References

Unit definitions per NIST SP 811 and the SI Brochure (exact where defined)

Report details

Report reference	FCC-V4WQ-T51A (the same inputs always give the same reference)
Generated	23 November 2026, 17:51 UTC
Calculator	Stress Unit Converter (MPa, N/mm², psi, ksi, kgf/mm²)
Method last reviewed	17 November 2026
Software release	FireCAD Calc, release of 22 November 2026
Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/general/unit-conversions/stress-unit-converter

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.